

Patent Claims

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5. Host cell according to Claim 4, characterized in that it is a pro- or eukaryotic cell.
6. Host cell according to Claim 5, characterized in that the prokaryotic cell is E. coli.
7. Host cell according to Claim 5, characterized in that the eukaryotic cell is a mammalian or insect cell.
8. Polypeptide encoded by a nucleic acid according to Claim 1.
9. Polypeptide which exerts the biological function of an acetylcholine receptor β subunit and which comprises an amino acid sequence having at least 40% identity to the sequence of SEQ ID NO: 2.
10. Acetylcholine receptor comprising at least one polypeptide according to Claim 8 or 9.
11. Method of producing a polypeptide according to Claim 8 or 9, which comprises
- (a) culturing a host cell according to one of Claims 4 to 7 under conditions which ensure expression of the nucleic acid according to Claim 1, and
- (b) obtaining the polypeptide from the cell or the culture medium.
12. Antibody which reacts specifically with the polypeptide according to Claim 8 or 9 or with the receptor according to Claim 10.
13. Transgenic invertebrate containing a nucleic acid according to Claim 1.

14. Transgenic invertebrate according to Claim 13, characterized in that it is *Drosophila melanogaster* or *Caenorhabditis elegans*.
- 5 15. Method of generating a transgenic invertebrate according to Claim 13 or 14, wherein a nucleic acid according to Claim 1 or a vector according to Claim 2 or 3 is introduced.
16. Transgenic progeny of an invertebrate according to Claim 13 or 14.
- 10 17. Method of generating a nucleic acid according to Claim 1, with the following steps:
- 15 (a) full chemical synthesis in a manner known per se or
- (b) chemical synthesis of oligonucleotides, labelling the oligonucleotides, hybridizing the oligonucleotides with DNA of an insect cDNA library, selecting positive clones and isolating the hybridizing DNA from positive clones or
- 20 (c) chemical synthesis of oligonucleotides and amplification of the target DNA by means of PCR.
18. Regulatory region which naturally controls, in insect cells, the transcription of
- 25 a nucleic acid according to Claim 1 and which ensures specific expression.
19. Method of finding new active compounds for crop protection or pharmaceutical active compounds for the treatment of humans or animals, in particular compounds which alter the conductive properties of receptors
- 30 according to Claim 10, with the following steps:

- Table 1**

[illegible]

- [illegible]

[illegible]

- [illegible]

22. Use of a nucleic acid according to Claim 1, of a vector according to Claim 2 or 3, of a host cell according to any of Claims 4 to 7, of a polypeptide according to Claim 8 or 9, of an acetylcholine receptor according to Claim 10, of an antibody according to Claim 12, of a transgenic invertebrate according to Claim 13 or 14 or of a regulatory region according to Claim 18 for finding new active compounds for crop protection or pharmaceutical active compounds for the treatment of humans or animals.